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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,824	03/22/2004	Tieyu Zheng	042390.P18292	1482
45209	7590	07/07/2010	EXAMINER	
INTEL/BSTZ			GOLUB-MILLER, MARCIA A	
BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/805,824	Applicant(s) ZHENG, TIEYU	
	Examiner MARCIA A. GOLUB-MILLER	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-29,31-34 and 36-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-29,31-34 and 36-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claim 25 filed on 06/01/10 have been considered but are moot in view of the new ground(s) of rejection.

The issue on appeal was: "Does the cited prior art collectively teach or suggest Yamauchi's laser control circuit 21 may be alternatively provided within the laser package body so as to be specifically disposed upon the surface of the internal sidewall ridge that supports the bonding wire terminals?" Since the applicants have removed the limitation related to laser control circuit from the independent claim 25, the board's decision on this issue is no longer applicable to claim 25 and all the claims that are dependent thereon that do not recite this limitation.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 26, 28, 36, 43-47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites the limitation "electrical connection". There is insufficient antecedent basis for this limitation in the claim. The abovementioned limitation was removed from claim 25 in the present amendment. Claims 43-47 are dependent on claim 26.

Claim 28 and 36 recite the limitation "laser light control device". There is insufficient antecedent basis for this limitation in the claim. The abovementioned limitation was removed from claim 25 in the present amendment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25, 29, 31, 33, 34, 41, 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamauchi et al. (2001/0033592), hereinafter '592, and further in view of Malone et al. (6,888,169)

Figs 5a and 11b of '592 disclose an optoelectronic module comprising:

25. "a stepped substrate [2] having a lower portion and an upper portion;
a thermo-electric cooler [3a] disposed on the lower portion, wherein the thermoelectric cooler has a top portion [3, 4] and a bottom portion;
a laser light source [1] disposed on the top portion [3,4] of the thermo-electric cooler [3a]."

'592 does not disclose:

"wherein the bottom portion has a plurality of cavities for electrical traces to contribute to compactness of a footprint of the module"

However, making ceramic plates of different shapes is well known in the art as evidenced by Fig 3 of '169, which discloses making two apertures in the ceramic plate in order to accommodate other objects and conductive traces. The top and bottom plates of the TEC device of '592 are formed of ceramic plates [paragraph 0050].

One of ordinary skill would have been motivated to incorporate the teaching of '169 into the device of '592 by making the shape of the bottom plate of the TEC accommodate the available space and the electrical connection in order to reduce the size of the laser module.

'592 and '169 disclose:

29. "wherein the thermo-electric cooler [3a] includes a plurality of elongated thermo-electric elements, the thermo-electric elements being disposed substantially in parallel between the top portion [3] and the bottom portion of the thermo-electric cooler.

31. "wherein the laser light source [1] is disposed directly on the thermo-electric cooler [4]."

33. "wherein the thermo-electric cooler [3a, 4] has a height that is substantially the same as the upper portion of the substrate.

- 34. “wherein the substrate [2] includes a substrate body comprising a one-piece component.
- 41. “wherein the bottom portion of the thermo-electric cooler is T-shaped.”
- 42. “wherein the laser light source [1] comprises a laser diode device.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over ‘592 and ‘169 as applied to claim 25 above, and further in view of Watts et al. (6,729,143), hereinafter ‘143.

‘868 discloses an optoelectronic module as described above, in addition ‘592 discloses using a submount between the laser and the TEC. However, Fig 3 of ‘143 discloses:

- 31. “wherein the laser light source [12] is disposed directly on the thermo-electric cooler [31].”

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of ‘143 into the device of ‘592 by placing the laser directly on top of the TEC for at least the purpose of improving the heat dissipation from the laser.

Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over ‘592 and ‘169 as applied to claim 25 above, and further in view of Acklin et al. (6,778,576) hereinafter ‘576.

‘592 discloses an optoelectronic module as described above:

“wherein the laser light source emits light bundles in a direction substantially parallel with a top surface of the thermo-electric cooler”

‘592 does not disclose:

- 37. “the module further including an optical device disposed on the substrate and adapted to redirect the light bundles from the direction substantially parallel with the top surface of the thermo-electric cooler to a direction that is substantially orthogonal to the top surface of the thermo-electric cooler.
- 38. wherein the optical device includes at least one of a mirror assembly and prisms.

39. wherein the optical device is disposed on the thermo-electric cooler.”

However, Fig 1 of ‘576 discloses using a mirror 17 and lens assembly 14 disposed on top of a TEC 25 to redirect the light emitted by the laser 5 in an orthogonal direction.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of ‘576 into the device of ‘592 by adding a light steering device on the TEC for at least the purpose of redirecting the light in the orthogonal direction in order to make the assembly compatible with a CAN type package.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over ‘592 and ‘169 as applied to claim 25 above, and further in view of Rosenberg et al. (6,703,561) hereinafter ‘561.

‘592 discloses an optoelectronic module as described above, but does not disclose:

40. “wherein the substrate includes a ceramic material.”

However, ‘561 discloses making the substrate 70 out of a ceramic material. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of ‘561 into the device of ‘868 by making a ceramic substrate for at least the purpose of improving the heat dissipation from the laser.

Claims 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over ‘592 and ‘169 as applied to claim 25 above, and further in view of Stewart et al. (2003/0043868) hereinafter ‘868.

‘592 discloses an optoelectronic module as described above, in addition he discloses thermal connection 9 to the substrate to dissipate the heat from the laser, but does not disclose vias in the substrate, however, fig 1 of ‘868 discloses:

32. “wherein the substrate [102] includes a substrate body and a plurality of vias [holes for 104] extended through the substrate body, the vias being adapted to provide electrical connections [110] to the thermo-electric cooler [200] and to dissipate thermoelectricity from the thermo-electric cooler.

Contact Info

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARCIA A. GOLUB-MILLER whose telephone number is (571)272-8602. The examiner can normally be reached on M-Th 9:30-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Marcia A. Golub-Miller/

/Minsun Harvey/

Supervisory Patent Examiner, Art Unit 2828